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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,388	01/27/2004	Christopher Lee Fletcher	03W085	2527
7590 07/19/2005			EXAMINER	
Raytheon Company 2000 East El Segundo Boulevard P.O. Box 902 El Segundo, CA 90245			PHAM, LONG	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 07/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/765,388	Applicant(s) FLETCHER ET AL.	
	Examiner Long Pham	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 1-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 14-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>01/27/04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 14-22 in the reply filed on 05/05/05 is acknowledged. The traversal is on the ground(s) that see the election of 05/05/05. This is not found persuasive because the end product of present claim 14 would be the same as the end product of the examiner's proposed process.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 14-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dennard et al. (US 6,812,527) in combination with Kim et al. (US patent 6,417,089).

Dennard et al. teach a method for fabricating a device, comprising (see figs. 7 and 8 and associated text):

forming electrical circuitry or devices on a wafer portion 24 of a substrate, the substrate having a handle portion 100, an oxide material portion 110, a bonding material portion 120, and the wafer portion 24;
removing the entire handle portion; and

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removing the oxide material portion thereby exposing at least a part of the bonding material portion.

With respect to claims 15 and 16, Dennard et al. fail to teach forming a oxidation or oxide material layer onto a surface of the wafer portion, forming photoresist material onto the oxidation layer, and forming a bump on the photoresist.

Kim et al. teach forming a oxidation or oxide material layer 34 onto a surface of a wafer portion 30, forming photoresist material 42 (by deposition) onto the oxidation layer, and forming a bump 40 on the photoresist. See fig. 2A and associated text.

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to incorporate the above teaching of Kim et al. into the process of Dennard et al. to form a bump connection that has reduced undercutting of under bump metallurgy. See col. 2, lines 60-65.

Further with respect to claims 15 and 16, Kim et al. fail to teach forming the oxide and bump by deposition.

However, the formation of oxide and bump by deposition is well-known.

With respect to claim 17, Dennard et al. teach forming semiconductor or MOS circuitry or devices in wafer portion but fail to teach the semiconductor devices are diodes.

However, It would have been obvious to one of ordinary skill in the art of making semiconductor devices to form diodes in the wafer portion of Dennard et al. to obtain devices that are capable of high-performance. See col. 2, lines 1-5.

With respect to claim 18, Dennard et al. further teach removing the handle portion by first etching. See col. 6, lines 25-45.

With respect to claim 19, Dennard et al. further teach removing the oxide material portion by second etching. See col. 6, lines 25-45.

With respect to claim 20, Dennard et al. further teach removing the handle portion as a function of the location of the oxide material portion because Dennard et al. teach removing the handle portion without removing the oxide material portion.

With respect to claim 21, Dennard et al. further teach removing the oxide portion as a function of the location of the bonding portion because Dennard et al. teach removing the oxide portion without removing the bonding portion.

With respect to claim 22, Dennard et al. further teach the entire handle portion is removed in a single process step.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long Pham whose telephone number is 571-272-1714. The examiner can normally be reached on M-F, 7:30AM-3:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Long Pham
Primary Examiner

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